

**THE QUALITY OF LIFE AND FACTORS
ASSOCIATED WITH IT AMONG DISABLED
CHILDREN AND ADOLESCENTS REGISTERED
WITH SELECTED COMMUNITY BASED
REHABILITATION (CBR), DEPARTMENT OF
SOCIAL WELFARE, KELANTAN**

by

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LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
ASD	Autisme Spectrum Disorder
CBR	Community Based Rehabilitation
CI	Confidence Interval
CP	Cerebral Palsy
DS	Down Syndrome
EIP	Early Intervention Programme
HRQoL	Health-Related Quality of Life
LD	Learning Disability
MLR	Multiple Logistic Regression
MR	Mental Retardation
NGO	Non-Government Organization
OR	Odds Ratio
PDK	Pusat Pemulihan Dalam Komuniti
PWD	Person with Disability
QoL	Quality of Life
ROC	Receiver Operating Characteristics
SHIA	Swedish Organization of Disabled Person
	International Aid Association
UNICEF	United Nations Children Fund
WHO	World Health Organization
YOKUK	Yayasan Orang Kurang Upaya Kelantan

**KUALITI HIDUP DAN FAKTOR YANG MEMPENGARUHINYA DI
KALANGAN KANAK-KANAK DAN REMAJA KURANG UPAYA YANG
BERDAFTAR DENGAN PUSAT PEMULIHAN DALAM KOMUNITI YANG
TERPILIH DI BAWAH JABATAN KEBAJIKAN MASYARAKAT,
KELANTAN**

ABSTRAK

Penentuan status kualiti hidup dan faktor yang mempengaruhi tahap kualiti hidup kanak-kanak dan remaja kurang upaya adalah penting kerana perkara ini dapat menggambarkan perasaan sebenar yang dialami oleh mereka. Bagi menentukan status kualiti hidup kanak-kanak dan remaja kurang upaya serta faktor-faktor yang mempengaruhinya, satu kajian hirisan lintang telah dijalankan di Pusat Pemulihan Dalam Komuniti (PDK) di 5 daerah dalam negeri Kelantan. Kajian ini melibatkan 419 kanak-kanak dan remaja kurang upaya yang berumur di antara 2 hingga 18 tahun. Status kualiti hidup yang telah diukur dengan menggunakan borang kaji selidik *Pediatric Quality of Life Inventory (PedsQL) core scales* telah menunjukkan bahawa status kualiti hidup kanak-kanak dan remaja kurang upaya ini adalah meningkat dan lebih baik dengan peningkatan umur mereka. Kajian menunjukkan bahawa kehadiran ke PDK menjadi salah satu faktor yang mempengaruhi status kualiti hidup. Jantina penjaga dan pendapatan isi rumah juga mempunyai hubungkait dengan status kualiti hidup mereka. Keputusan analisa model akhir menggunakan *Multiple Logistic Regression (MLR)* mendapati 4 jenis ketidakupayaan yang telah mempengaruhi status kualiti hidup adalah *cerebral palsy (CP)*, sindrom down, autism dan masalah kesihatan. Kebarangkalian kanak-kanak dan remaja yang

mempunyai masalah CP, autism dan masalah kesihatan untuk mempunyai status kualiti hidup yang rendah adalah meningkat sebanyak 13.1, 5.7 dan 2.8 kali. Manakala, kanak-kanak dan remaja yang disahkan sebagai sindrom down mempunyai kesan perlindungan yang lebih baik, iaitu sebanyak 0.4 kali kebarangkalian untuk mempunyai status kualiti hidup yang rendah. Secara tidak langsung, kajian ini dapat membantu golongan profesional yang terlibat bagi menambahbaik perancangan program intervensi dan memberi perhatian lebih khusus kepada kanak-kanak dan remaja yang mempunyai ketidakupayaan seperti CP, autism, sindrom down dan masalah kesihatan.

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ABSTRACT

Determination of quality of life status and its associated factors among disabled children and adolescents is important because it can reflect the true feelings experienced by them. To determine the QoL status and factors associated with it, a cross-sectional study was conducted at the Community-Based Rehabilitation (CBR) centres in five districts in Kelantan. The study involved 419 disabled children and adolescents ages between 2 to 18 years old. The QoL status was measured using Paediatric Quality of Life Inventory (PedsQL) core scales and it showed that the QoL status among the disabled children and adolescents are increasing with their age. Study showed that the presence to CBR is one of the factors associated with the QoL status. Besides, gender and household income also has a relationship with the QoL status. The Multiple Logistic Regression (MLR) analysis was applied and four types of disability were found to be associated with the QoL status includes cerebral palsy (CP), Down syndrome, autism and medical problem. The probability of children and adolescents who have had CP, autism and medical problems to have a lower QoL status is increased by 13.1, 5.7 and 2.8 times. However, children and adolescents diagnosed as Down syndrome have a protective effect, by 0.4 times to have lower QoL status. Indirectly, this research will help professionals involved to improve the

intervention programs and give special attention to the disabled who have disabilities such as CP, autism, Down syndrome and medical problem.

CHAPTER 1

INTRODUCTION

1.1 The Disabled Children and Adolescents

Convention on the Rights of the Child (CRC) defines a child as those who below the age of twelve years old and an adolescents are those below the age of eighteen years (UNICEF, 2013). In 2013, Malaysia is home of 9.5 million children and adolescents (UNICEF, 2013). This represents about 5,706 disabled children and adolescents in Malaysia in year of 2013 (Department of Social Welfare, 2015b).

Some children will be born with a disabling health condition or impairment while others may experience disability as a result of illness, injury or poor nutrition. The American Health Association defines a disabled child as a child who cannot play, cannot learn, or cannot do things that children at his or her age can do, or, said another way, a child who cannot fully use all of his or her physical, mental, and social abilities for various reasons (Russell, 2008). Children with disabilities include those with health conditions such as cerebral palsy, spina bifida, muscular dystrophy, traumatic spinal cord injury, Down syndrome, and children with hearing, visual, physical, communication and intellectual impairments (WHO, 2012). A number of children have a single impairment while others may experience multiple impairments.

A child born with a disability will need a life-long adjustment. A disability will create a barrier for a child to live like a normal child. From childhood to adulthood, the perception and life directions are different from others. The transition of a disabled person from children age to adulthood is a challenging process. Disabled adolescents with normal intelligence and disabilities such as cerebral palsy, muscular dystrophy and other physical difficulties may be able to transit to independence adulthood life at minimum and acceptable difficulties whereas, disabled adolescents with physical and developmental disabilities that may influence cognitive processing or severely ill limit their life experience and having great difficulties and poor dependency level.

1.2 Pathway and Direction of Disabled Children and Adolescents in Malaysia

Global concerns towards person with disabilities (PWDs) were began since 1970s through the United Declaration on the Rights Foundation for the Mental Retarded in 1971 and the United Nations Declaration on the Rights of Persons with Disabilities in 1975 (Tan, 2006). Malaysia was consented all the declaration and committed in providing an inclusive community, without discrimination and based on human rights for people with disability.

Special education in Malaysia began since 1920s when volunteers involved in opening schools for people with hearing and visual disability (Tahir & Mustafa, 2010). Following this, through Declaration of Education Policy 169, Malaysia has started to lead and focus on development of education for the disabled children in Malaysia (Government of Malaysia, 2008). Community Based Rehabilitation (CBR)

are developed since 1984 and monitored by Ministry of Social Welfare (Department of Social Welfare, 2015a).

The CBR is a centre for the disabled children ages 2 to 18 years old. The CBR is build up in community to provide early intervention programme. To date, there are a lot of private centres for disabled children above 2 years old which offers for early intervention programmes. At age of 7 years old, a disabled child who has mild to moderate mental disability and have good independency level will be selected to continue their education in Special Education School or Special Education Integrated Programme. For those who are not selected will remain in the CBR. Following the system, the disabled child in Education School or Special Education Integrated Programme will be transited to secondary school while those in CBR will continue the programme until 18 years old.

Since 2010, the Ministry of Education enrolled an inclusive education programme, which means that the children with disabilities are integrated into mainstream classes (UNICEF, 2014b). A comprehensive evaluation will be conducted to select the student into the inclusive education programme. The inclusive education programmes are divided into two categories include full inclusive and partial inclusive. The full inclusive programme will position the selected children in mainstream class for the whole academic sessions and curricular activities while the partial inclusive programme will engage the selected disabled children in curricular activities or non-academic sessions only.

The disabled children in the inclusive education programme will be monitored and evaluated throughout the year. There possibility that the disabled children who have poor performance, will be transited back to special education school or integrated school. Malaysia Educational Statistics 2012 reported that the number of children with disabilities enrolled in inclusive education programmes declined from 6,360 in 2010 to 562 in 2012. The 562 children with disabilities in the inclusive education programme in mainstream classes in 2012 represents about 1% out of the 50,738 children with disabilities enrolled in special needs education in 2012 and around 0.01% out of the 5,086,180 students with or without disabilities in the national education system in that year (Ministry of Education, 2012) . The disabled adolescents who finished the secondary school are either to be employed or unemployed. Most of the time, unemployed adolescents will again, continue their education system in CBR programme. Figure 1.1 shows the flow of education system for the disabled children and adolescents in Malaysia practice.

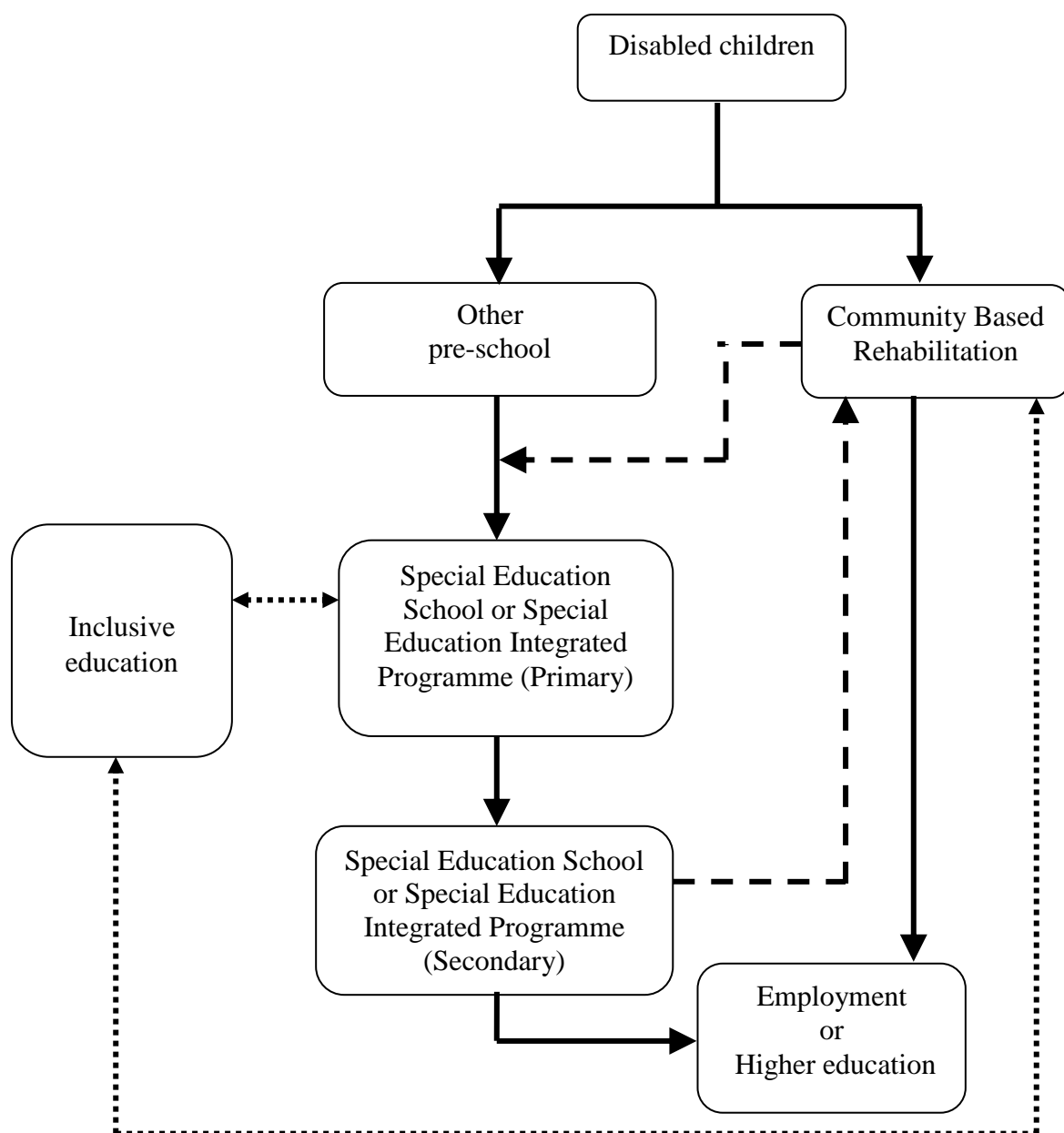


Figure 1.1 Flow of education system for the disabled children and adolescents in Malaysia

1.3 Community Based Rehabilitation

The declaration of Alma-Ata in 1978 was the first international declaration advocating primary health care as the main strategy for achieving the WHO's goal of "health for all". Following the Alma-Ata declaration, WHO introduced Community Based Rehabilitation (CBR) (Khasnabis *et al.*, 2010). The CBR has been advocated internationally for more than 30 years as the core strategy for improvement of the quality of life of persons with disabilities (WHO & SHIA, 2002).

The Community Based Rehabilitation (CBR) is a development strategy that is currently implemented in over 90 countries throughout the world to address the needs of people with disabilities and their family members (WHO, 2015). The CBR focuses on enhancing the quality of life for people with disabilities and their families to meet basic needs and ensuring inclusion and participation. The CBR promotes collaboration among community leaders, people with disabilities, their families, and other concerned citizens to provide equal opportunities for all PWDs in the community. It is a multi-sectoral strategy that empowers PWDs to access and benefit from education, employment, health and social services.

The major objectives of the CBR are to ensure that PWDs are able to maximise their physical and mental abilities, to access regular services and opportunities, and become active contributors to the community and society at large. The CBR also functioning to activate communities to promote and protect the human rights of people with disabilities through changes within the community, for example by removing barriers to participation (WHO, 2004).

Community action for CBR is often initiated by a stimulus from outside the community, most likely ministries or non-governmental organizations (NGOs) (WHO, 2004). In 1984, the Department of Social Welfare, Malaysia has taken the initiative in collaboration with the Ministry of Health to prepare the manual and taken opportunity to evaluate and modify the implementation of the CBR programme. A CBR pilot project was carried out in Mukim Batu Marang, Kuala Terengganu involving 55 PWDs. The CBR programme has grown exponentially and received overwhelming response from the public from time to time (Department of Social Welfare, 2015a).

In Malaysia practice, CBRs provide services for children and adolescents from 2 to 18 years old. A CBR consists of one supervisor, and few officers or teachers and the disabled children and adolescents (also known as trainees). Total of CBRs centres in Malaysia in 2014 are 508 throughout the country with 21,869 registered disabled children and adolescents. From the distribution, total of CBRs in Kelantan are 37 and registered disabled children and adolescents in that state are 1,657 (Department of Social Welfare, 2016).

1.4 Role of Community Based Rehabilitation for Disabled Children and Adolescents

Community Based Rehabilitation programme in Malaysia is based on three (3) models which are home-based, centre-based and centre-home based (Department of Social Welfare, 2015a). Home-based model is a model applied for severe disabled children and adolescents who unable to attend the centre due to bed ridden condition, long distance and transportation issue. The teacher from CBR will visit the disabled children or adolescents at their home weekly for training and education purposes.

Centre-based model is applied for most registered disabled children and adolescents. The registered disabled children and adolescents will attend CBR at 9 am until 1 pm for five days per week. Daily programmes are scheduled according to groups of developmental age and their capabilities. The activities include gross and fine motor skills, social development, language development, self-management, pre-writing, reading, calculating, drawing, creative activity, music therapy, sports and recreation, and vocational training.

Centre-home based model is a model created for caregivers of disabled children and adolescents. The programme involves teachers, caregivers, professional bodies and communities who take initiative to provide education, motivation and support activities. The purposes of the activities are to ensure caregivers and community to receive adequate information and education regarding CBR programme, methods of handling the disabled children and adolescents, and emotional support. The activities include parents support group, child-family

education, volunteer-caregivers program, community awareness, social counselling and others.

The Community Based Rehabilitation (CBR) plays a role as an early intervention centre for the disabled children and adolescents. In collaboration with professional medical multidisciplinary team, the CBR provides training for the disabled development such as mobility training, daily living skills, language and literacy skills and behaviour modification. In addition, professional teams like medical and dental consultant, Speech and Language Pathologist (SPT), Occupational Therapist (OT) and Physiotherapist (PT) will attend the CBR to give treatment or individual therapy to the disabled children and adolescents who need special attention from these expertises.

Despite of early intervention programme, the CBR is a place for the children below than 6 years old to prepare themselves to attend school. Disabled children who have good cognitive level (mild to moderate) and able to do self care independently will enter the special school or integrated school for standard one. The other disabled children will remain in CBR programme. Most of the CBRs offers vocational training programme. This programme enhances the disabled adolescents to learn skills to generate income. The activities for vocational training include making craft, manufacturing woods, gardening and agriculture, car washing, and others.

The CBR also act as an information centre for the disabled children and adolescents. The 'community' element facilitates the CBR committee to know the caregivers, families, and community better. The CBR will provide resources for

government agencies to help the disabled children and adolescents who need additional supports such as assistive devices, and financial support.

1.5 Impact of Community Based Rehabilitation on Disabled Children and Adolescents

Along with the development of the CBR, its evaluation has been explored to some extent. A range of monitoring and evaluation approaches and methods has gradually been developed. In overall, the CBR are highly effective and valuable for people with disabilities in the community (Iemmi *et al.*, 2015; Mannan & Turnbull, 2007; WHO & SHIA, 2002). CBR programme seems to have develop social inclusion of disabled children and adolescents in social norms and values, which are essential for the further development of quality of life of persons with disabilities (WHO & SHIA, 2002).

A study done by WHO and SHIA indicated that the CBR has impacted positively on some aspects of quality of life include self-esteem, empowerment and influence, social inclusion and self-reliance (WHO & SHIA, 2002). Besides, Zhuo and Kun (1999) in their study stated that 93% of disabled persons who attend CBRs have more positive outlook on life, more motivation and confidence. In addition, the CBR enhanced feelings of self-worth among disabled children and adolescents (Hartley, Finkenflugel, Kuipers, & Thomas, 2009); (Zhuo & Kun, 1999).

Besides that, the CBR becomes an easier platform to integrate people with disabilities through education programmes (Stuelz, 1999). The CBR delivers

rehabilitation and prevention services to people with disabilities and their families (Deepak, 2001). Moreover, the CBR provides vocational training for disabled adolescents to learn on how to generate income. These programmes will enhance a better future for the disabled children and adolescents as it can reduce the impact of disability among them and improve their independency level in future for a better quality of life.

As mentioned earlier, the CBR provides social inclusion among the disabled children and adolescents which can enhance positive impacts in term of psychological and sociological effects. The disabled children and adolescents who attend the CBR are more approachable, have good rapport and improve in confidence level. However, the impact is limited when it comes to physical well-being, confidence and trust in society to fulfil its human right obligations (WHO & SHIA, 2002).

Iemmi and colleagues (2015) added that many children and adolescents with disabilities would potentially benefit from the CBR. Unfortunately the coverage of CBR programme is currently very low, and the evidence has not been comprehensively assessed to identify whether the CBR is effective and under which circumstances. There is a lack of evidence for the impact of interventions across development programmes (CBM, 2010).

According to a research done by Iemmi and colleagues (2015), a systematic review on CBR for people with disabilities in low- and middle-income countries, the CBR programmes failed to teach activities of daily living skills to persons with

disabilities in a successful manner. In another study by Thomas & Thomas (2006), the study revised that CBR programmes face many difficulties in dealing with the impairment aspects of severe disabilities and most of the CBR programmes also do not have personnel who are adequately trained to deal with this group. Many programmes in CBR are initiated by other agencies which need to build rapport with the disabled persons and show quick results. They often achieve this by working with mild to moderate disabled persons. As a result, severe disabled persons tend to be left out of interventions (Thomas & Thomas, 2006).

In society view, the disabled children and adolescent are still dependent, fragile, helpless and incapable of doing things (Castaneto & Willemsen, 2007). This could be a reason why people with disabilities are more likely to be unemployed and generally earn less even when employed (WHO, 2011). Vocational training in CBR programme somehow does not facilitate the disabled adolescents to have a job after they finished the programme.

In this matter, the CBR programmes have positively impact the children and adolescents in areas of psychosocial, self-reliance, self-esteem and empowerment. However, the CBR are less likely to benefit children and adolescents in areas of physical development, transition from children to adulthood and community acceptance.

1.6 Problem Statement

The government has committed to ensure persons with disability (PWDs) have equal rights and opportunities to participate fully in society. Policy for Disabled Persons has been monitored by Ministry for Women, Family and Community, Malaysia. This policy emphasizes on human rights values such as integrity, honour and independence. Many facilities provided for PWDs such as advocacy, accessibility, health care, rehabilitation, education, employment, personal safety and social protection, support services, social, human resources development and others (Department of Social Welfare, 2015b).

However, the PWDs have never-ending issues in education, employment and personal development. Most of the disabled children who went through a developmental process with efforts and pain will have difficulties in transition to adulthood. Abundant of PWDs are unemployed and unmarried. Finally, the disabled adolescents will live for a long time with parents and families.

Career is an important aspect for all individual. Selection of the right career can determine the standard of living and QoL status of a person. The PWDs also need a career to go through a life span. However, discrimination against the PWDs causes the community to label the PWDs as stereotypes (Draper, Reid, & McMahon, 2010). A study done by Samian and colleagues in Johor, Malaysia (2013) concluded that the main factors of an organization refused to employ PWDs were because the PWDs needed an extra guidance to conduct a task, had problem in group task, non-quality production, and behaviour problem (Samian, Md Ali, & Buntat, 2013).

The direction of education and employment of the disabled children and adolescents seem to no denouement. Pesuruhjaya Suruhanjaya Hak Asasi Manusia Malaysia (SUHAKAM), Detta Samen in a report said that approximately 90% of disabled children worldwide did not receive education and had literacy problem (Borneo Post, 2012). Detta Samen added that educational system in Malaysia was found to be unreliable and unable to fulfil the needs of disabled children and adolescents (Borneo Post, 2012). He concluded that without appropriate education and training for the disabled, the education system will prevent the disabled persons to be employed and generate income.

Some of the PWDs remain dependent until the end of life. Severity of disability will be a great challenge for them to improve physically. Their dependency level will increase as their ages increase. This situation will burden the family as a whole. Although the early intervention programme are provided at community level, but this group of persons failed to improve and remain dependent.

In summary, the PWDs who failed to have a better life will experience stress, depression, dependent and poor quality of life. Even though the PWDs with intellectual disability cannot express their thoughts, they might have the same feelings. Although the outsiders (government, agencies and family) provide so many benefits and facilities, internal self-satisfaction, acceptance and QoL status are much more important to motivate the PWDs to be better. Poor QoL status will limit the performance of an individual in personal development.

1.7 Rationale of the Study

This study is conducted to measure quality of life status and to determine related factors that associated with the QoL status among the disabled children and adolescents.

Measuring QoL is important as it gives a voice to children (Colver, 2008) and provide a complete picture of children's health status. The disabled children and adolescents experienced multiple types and severity of disability. Those who have intellectual, speech and hearing disability will have difficulty in expressing needs and desires. Parent and family might understand their basic needs. However, the parent and family may certainly not comprehend their self-satisfaction. Measurement of QoL status is critical for this group of disability as it will reveal the burden that the disabled children and adolescents experienced.

Looking at current issues, the PWDs have a great challenge to make a transition from childhood to adulthood. It is important to determine the factors that limit the disabled persons when they are young. Quality of life measurement will verify a valuable new insight into the relationship of QoL status and risk factors. The determination of factors that can contribute poor QoL status among disabled children and adolescents is important as it has impact on their future life. Following this, the study outcome can be used to guide intervention to improve the condition and avert more intense consequences.

To date, there is no finding regarding measurement of the QoL status of disabled children and adolescents in group of multiple types of disability in

Malaysia. To our knowledge, there are few researches done in Malaysia focusing on quality of life status in specific condition or disease like Cerebral Palsy, Thalassaemia and dermatitis (Chamlin & Chren, 2010; Dahlui, Hishamshah, Rahman, & Aljunid, 2009; Lim, Seer, & Wong, 2009). On the other hand, few researchers studied on impact of disability among parents and caregivers (Isa *et al.*, 2013; Sian & Tan, 2012).

As conclusion, this study will be a stepping stone for measuring the QoL status of PWDs from childhood in all age groups. Furthermore, study of measuring QoL status will provide comprehensive perspective that can be used for other healthcare system and agencies for guidelines, treatment, health policy and any kind of references.

1.8 Objectives of the Study

1.8.1 General Objectives

To study the quality of life status of disabled children and adolescents in selected Community Based Rehabilitation, Kelantan

1.8.2 Specific Objectives

Objective 1

To determine the quality of life status of disabled children and adolescents in selected Community Based Rehabilitation, Kelantan

Objective 2

To determine the relationship between the quality of life status of disabled children and adolescents with socio-demographic characteristics and types of disability

1.9 Research Questions (RQ)

RQ 1

What is the quality of life status of disabled children and adolescents in Community Based Rehabilitation Kelantan?

RQ 2

Are there any relationship between the quality of life status of disabled children and adolescents with socio-demographic characteristics and types of disability?

1.10 Research Hypotheses

There is an association between the quality of life status of disabled children and adolescents and socio-demographic characteristics and types of disability

CHAPTER 2

LITERATURE REVIEW

2.1 Disability

The word disability is subjected to a wide variety of interpretations. The International Classification of Functioning, Disability and Health: Children and Youth Version (ICF-CY) defines disability as an umbrella term for impairments, activity limitations, and participation restrictions (WHO, 2015). Disability is the interaction between individuals with a health condition (e.g. cerebral palsy, Down syndrome and depression) and personal and environmental factors (e.g. negative attitudes, inaccessible transportation and public buildings, and limited social supports) (WHO, 2007).

The Committee of the Rights of Persons with Disabilities (CRPD) stated that persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full effective participation in society on an equal basis with others (United Nations, 2008). According to Persons with Disabilities Act 2008 (Law of Malaysia), persons with disabilities (PWDs) are those who have long term physical, mental, intellectual or sensory impairments which may hinder their full and effective participation during interaction in society (Government of Malaysia, 2008).

The disability experience resulting from the interaction of health conditions, personal factors and environmental factors, and it varies greatly. Disability encompasses the child born with a congenital condition such as cerebral palsy or the young soldier who loses his leg to a land-mine, or the middle-aged woman with severe arthritis, or the older person with dementia, among many others (WHO, 2011).

2.2 Disabled Children and Adolescents in Malaysia

World Health Organization (WHO) and the World Bank estimate that over a billion people, about 15% of the world's population, have some form of disability. Among these, between 110 million and 190 million adults have very significant difficulties in functioning (WHO, 2011).

Malaysia lacks of comprehensive and structured system of data collection and compilation for children with disabilities. Thus, reliable statistics on the actual number of children with disabilities in the country is not available (UNICEF, 2014a). By the end of 2012, the Department of Social Welfare (DSW) national registration system had 445,006 persons with disabilities which represent 1.5% of the country's population in that year (Department of Social Welfare, 2013).

The number of children and adolescents with disabilities by the end of 2012 are 29,289 and the distribution of female and male are 62% and 28% respectively. The disabled children and adolescents are classified according to types of disability. In 2012, the number of the disabled children and adolescents according to types of disability are presented in figure 2.1 (Department of Social Welfare, 2013). The total

number of registered children and adolescents with disability as at 2012 is not disaggregated by state in Malaysia (Department of Social Welfare, 2013). As such, it is possible to tell how many disabled children and adolescents in each state.

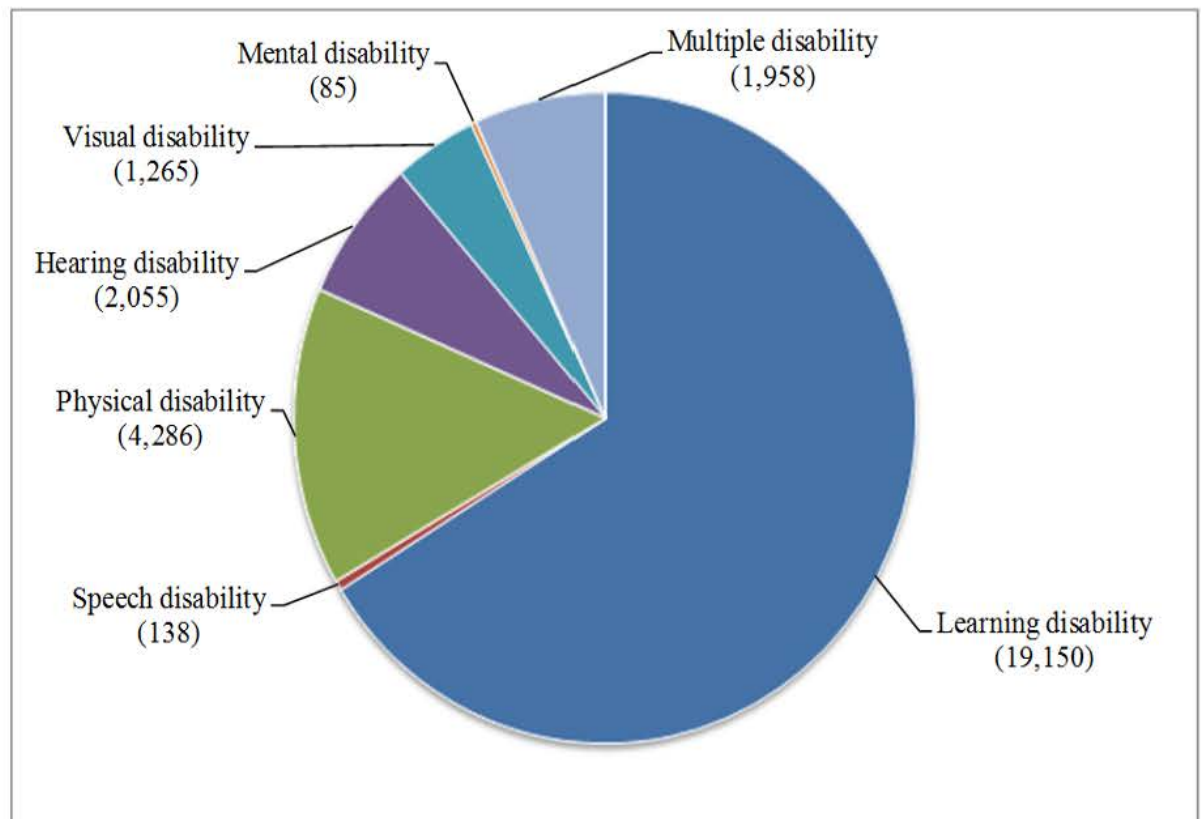


Figure 2.1: Number of disabled children and adolescents according to types of disability in Malaysia in 2012

2.3 Types of Disability

The Department of Social Welfare (2015) has categorized persons with disabilities (PWDs) into seven types of disabilities includes hearing, visual, speech, physical, learning, mental and multiple disabilities (Department of Social Welfare, 2015b). Hearing disability means inability to hear clearly in both ears without the use

of hearing aids or inability to hear completely even with use of hearing aids. Hearing disability are divided into four stages, namely (i) minimum 15 - <30dB (kids), (ii) minimum 20 - <30dB (adults), (iii) medium 30 - <60dB, (iv) severe 60 - <90dB, (v) profound ≥ 90 dB (Department of Social Welfare, 2015b).

Visual disability represent a continuum, from people with very poor vision, to people who can see the light, to people who have no perception of light at all or blind. Visual disability can be divided into limited vision or blind. Limited vision means vision worse than 6/18 but equal to, or better than 3/60 even by using vision aid appliance or visual field of less than 20 degrees from fixation. Blind means vision less than 3/60 views by counting fingers, hand movement, perception of light and no light perception or visual field less than 10 degrees from fixation (Department of Social Welfare, 2015b).

Physical disability means permanent disability of part of the body whether caused by the loss or absence or inability of any part of the body that can affect their full function in the basic activities. Basic activities are defined as self care, mobility and changing the position of the body. This condition can occur as a result of injury (or trauma) or disease in any of the central nervous system, musculoskeletal, gynaecological and others that cause malfunction. Examples of physical disabilities are limb defects, spinal cord injury, stroke, traumatic brain injury, cerebral palsy and others (Department of Social Welfare, 2015b).

Learning disability is the problem of intelligence that is not consistent with the biological age. Persons with Learning disabilities include global developmental

delay, Down syndrome, autism, attention deficit hyperactivity disorder, slow learner and specific learning difficulties such as dyslexia, dyscalculia and dysgraphia (Department of Social Welfare, 2015b).

Speech disability is inability to speak resulting in communication disorders and they cannot be understood by those who interact with them. This condition is permanent or will not recover (Department of Social Welfare, 2015b).

Mental disability refers to a state of mental illness which cause a person to be incapable of work whether in part or in full respect of himself or relationships in the community (Department of Social Welfare, 2015b).

Multiple disability is those who have more than one type of disability, and is generally not appropriate to be classified in above types of disabilities (Department of Social Welfare, 2015b).

2.4 Impacts of Disability among Disabled Children and Adolescents

While degree and type of disability varies with disabled individual circumstances, people with disabilities frequently experience difficulty being independently mobile, being able to see, hear, think wisely or communicate. The impact on the life of disabled children and adolescents can be major, particularly if the individual has multiple disabilities. Disabled children and adolescents are often seen as difference, stereotype, dependent and isolated. In contemporary society, there is still believed that those with disabilities are inferior to or less competent than other

individuals (Hunt & Hunt, 2000). Those with disabilities often feel that they are somehow “less” than others. The impact of disabilities among disabled children and adolescents can be varies greatly on personal and developmental, family and community.

2.4.1 Personal and Development

Disability is complex, dynamic, multidimensional and challenging. The disability results in substantial limitations of function in three or more of the areas include self-care, receptive and expressive language, learning, mobility, self-direction and capacity for independent living (Leung & Li-Tsang, 2003). Children with disabilities are more dependent on their parents or caregivers. The disabled persons also require special long-term or life-long interdisciplinary or generic care, treatment, or other services to be planned or coordinated (Azaula *et al.*, 2000). These might include therapy session, administrations of medication and adherence to special diets (Beresford, 1996). Therefore, some of them are more likely to remain dependent longer than their non-disabled peers (Beresford, 1996).

Disability is an issue of development. The disabled children and adolescents are more likely to have delayed in some areas of growing or developmental process. As compared to normal population, their chronological ages are not synchronized with developmental age. Some of them will have some issues on mental or cognitive development, gross and fine motor development and social and participation. In consequences, children with disabilities are less likely to attend school and lack of social participation. Difficulty in engaging with normal population will cause them to be neglected by peers and society as well.

The disabled children and adolescents are often presented as lacking in self-confidence, having low self-esteem and lacking in life skills (Hallum, 1995). Limitation in the disabled children and adolescents' ability to get from one place to another will affect their opportunities to make and maintain social contacts. Lack of social participation among peers will result in social isolation and dissatisfaction with social life. Persons with disability are often assumed to be less happy, less satisfied with life and unable to attain worthwhile existences (Hallum, 1995).

For disabled adolescents, the onset of disability may lead to the worsening of social and economic well-being. People with disabilities are more likely to be unemployed and generally earn less even when employed (WHO, 2011). Both employment and income outcomes appear to worsen with severity of the disability. However, adolescents with speech and hearing disabilities have more opportunity to generate income as compared to adolescents with severe physical and mental disabilities. This problem somehow will cause the disabled adolescents unable to generate income and poor in socioeconomic status among disabled adolescents in some way will create greater and lifelong care towards parents and families.

2.4.2 Family Impact

Caring for disabled children and adolescents requires extraordinary time and patience, and the responsibility seems never-ending. Providing care over a long period of time can lead to serious health and financial problems. People with disabilities may have extra costs resulting from disability such as costs associated with medical care, sanitation, treatment, and transportation (Hosseinkhanzadeh,